

Appl. No. 10/044,268  
Amdt. Dated. Oct. 3, 2003  
Reply to Office Action of August 7, 2003

**Amendments to the Claims**

Claim 1 (previously amended): A thin film filter for dense wavelength division multiplexing, the thin film filter comprising:

a glass substrate; and

a film stack mounted on the glass substrate, the film stack comprising a plurality of cavities; wherein

each cavity comprises a first mirror layer, a second mirror layer, and a spacer layer arranged therebetween, both of the first mirror layer and the second mirror layer including low refractive index thin films and high refractive index thin films, and wherein each of the high refractive index thin films comprises a composition of indium-tin oxide having high refractive index such that a substantially different refractive index between the low refractive index thin films and the high refractive index thin films is formed.

Claim 2 (previously amended): The thin film filter as described in claim 1, wherein the film filter further comprises a coupling film, and the coupling film adjoins an adjacent cavity of the plurality of cavities.

Claim 3 (previously amended): The thin film filter as described in claim 2, wherein the coupling film is made of a material having a relative low refractive index.

Claim 4 (cancelled)

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Claim 5 (cancelled)

Claim 6 (currently amended): The thin film as described in claim 34, wherein the spacer layer has an optical thickness of an integer times one-quarter of a central wavelength of a pass bandwidth of the thin film filter.

Claim 7 (original): The thin film filter as described in claim 1, wherein a range of the composition of indium-tin oxide is from 20% indium oxide plus 80% tin oxide to 17% indium oxide plus 83% tin oxide.

Claim 8 (previously amended): The thin film filter as described in claim 1, wherein the low refractive index thin films comprise silicon dioxide ( $\text{SiO}_2$ ) or aluminum oxide ( $\text{Al}_2\text{O}_3$ ).

Claim 9 (previously amended): The thin film filter as described in claim 8, wherein the low refractive index thin films and the high refractive index thin films are alternately deposited one on another.

Claim 10 (previously amended): The thin film filter as described in claim 9, wherein each of the low refractive index thin films and each of the high refractive index thin films has an optical thickness equal to one-quarter of a central wavelength of a pass bandwidth of the thin film filter.

Claim 11 (currently amended): A thin film filter for dense wavelength division multiplexing, the thin film filter comprising:

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a glass substrate; and

a film stack mounted on the glass substrate, the film stack comprising five cavities, each cavity having a plurality of layer, and each layer comprising low refractive index thin films and high refractive index thin films; wherein

each of the high refractive index thin films comprises a composition of indium-tin oxide having a refractive index of about 2.1, and numbers of layers in fiver cavities are ~~about~~ 160.

Claim 12 (previously added): The thin film filter as described in claim 11, wherein the film filter further comprises a coupling film, and the coupling film adjoins an adjacent cavity.

Claim 13 (previously added): The thin film filter as described in claim 12, wherein coupling film is made of a material having a relative low refractive index.

Claim 14 (previously added): The thin film filter as described in claim 13, wherein the low refractive index thin films comprise silicon dioxide ( $\text{SiO}_2$ ) or aluminum oxide ( $\text{Al}_2\text{O}_3$ ).